WHAT IS CLAIMED IS:

1. A rubber composition characterized in that it comprises [1A] a crosslinked rubber particle containing, as repeating units, (a1) 40 to 79.99 % by weight of a conjugated diene monomer unit, (a2) 20 to 50 % by weight of an aromatic vinyl monomer unit and (a3) 0.01 to 10 % by weight of a monomer unit formed by a monomer having at least two polymerizable unsaturated groups with respect to 100 % by weight of total of (a1), (a2) and (a3), and [2A] a conjugated diene/aromatic vinyl copolymeric rubber wherein vinyl bond content of conjugated diene unit is 10 to 30 % by weight and 1,4-trans bond content is exceeding 55 % by weight.

2. A rubber composition characterized in that it comprises [1B] a crosslinked rubber particle containing, as repeating units, (b1) 40 to 99.89 % by weight of a conjugated diene monomer unit, (b2) 0 to 50 % by weight of an aromatic vinyl monomer unit, (b3) 0.01 to 10 % by weight of a monomer unit formed by a monomer having at least two polymerizable unsaturated groups and (b4) 0.1 to 30 % by weight of a monomer unit formed by a monomer having one polymerizable unsaturated group and at least one functional group selected from the group consisting of carboxylic group (CO_2H and/or CO_2^-), hydroxyl group and epoxy group with respect to 100 % by weight of total of (b1), (b2), (b3) and (b4), and [2B] a conjugated diene/aromatic vinyl copolymeric rubber wherein vinyl bond content of conjugated diene unit is 10 to 30 % by weight and 1,4-trans bond content is exceeding 55 % by weight.

3. The rubber composition according to Claim 2, wherein content of said conjugated diene monomer unit (b1) is 40 to 79.89 % by weight, content of said aromatic vinyl monomer unit (b2) is 20 to 50 % by weight,

and said monomer unit (b4) is formed by a monomer having one polymerizable unsaturated group and at least one functional group selected from the group consisting of hydroxyl group and epoxy group.

4. The rubber composition according to Claim 2, wherein content of said aromatic vinyl monomer unit (b2) is zero, and said monomer unit (b4) is formed by a monomer having one polymerizable unsaturated group and at least one functional group selected from the group consisting of hydroxyl group and epoxy group.

5. The rubber composition according to any one of Claims 1 to 3, wherein,

a monomer forming said conjugated diene unit constituting said crosslinked rubber particle is at least one selected from the group consisting of 1,3-butadiene, 2,3-dimethyl-1,3-butadiene, isoprene and chloroprene,

a monomer forming said aromatic vinyl monomer unit constituting said crosslinked rubber particle is at least one selected from the group consisting of styrene, 2-methylstyrene, 3-methylstyrene, 4-methylstyrene, α-methylstyrene, 2,4-dimethylstyrene, 2,4-diisopropylstyrene, 4-tert-butylstyrene and tert-butoxystyrene, and

a monomer forming said monomer unit having said polymerizable unsaturated group constituting said crosslinked rubber particle is at least one selected from the group consisting of ethylene glycol di(meth)acrylate, propylene glycol di(meth)acrylate, 1,4-butanediol di(meth)acrylate, 1,6-hexanediol di(meth)acrylate, trimethylolpropane di(meth)acrylate, trimethylolpropane tri(meth)acrylate, pentaerythritol tri(meth)acrylate, pentaerythritol tetra(meth)acrylate, divinylbenzene, diisopropenylbenzene and trivinylbenzene.

6. The rubber composition according to any one of Claims 1 to 5 wherein,

a monomer forming said conjugated diene unit constituting said conjugated diene/aromatic vinyl copolymeric rubber is at least one selected from the group consisting of 1,3-butadiene, 2,3-dimethyl-1,3-butadiene, isoprene and chloroprene, and

a monomer forming said aromatic vinyl monomer unit constituting said conjugated diene/aromatic vinyl copolymeric rubber is at least one selected from the group consisting of styrene, 2-methylstyrene, 3-methylstyrene, 4-methylstyrene, α-methylstyrene, 2,4-dimethylstyrene, 2,4-diisopropylstyrene, 4-tert-butylstyrene and tert-butoxystyrene.

7. The rubber composition according to any one of Claims 1 to 6, further comprising a monomer unit formed by at least one selected from the group consisting of (meth)acrylonitrile, vinylidene cyanide, vinyl chloride, vinylidene chloride, (meth)acrylamide, maleimide, methyl (meth)acrylate, ethyl (meth)acrylate, n-propyl (meth)acrylate, iso-propyl (meth)acrylate, n-butyl (meth)acrylate, iso-butyl (meth)acrylate, sec-butyl (meth)acrylate, tert-butyl (meth)acrylate, n-amyl (meth)acrylate, n-hexyl (meth)acrylate, 2-ethylhexyl (meth)acrylate and cyclohexyl (meth)acrylate as said monomer unit constituting said conjugated diene/aromatic vinyl copolymeric rubber.

8. The rubber composition according to any one of Claims 1 to 7 wherein a monomer forming said conjugated diene/aromatic vinyl copolymeric rubber is a monomer having one polymerizable unsaturated group and at least one functional group selected from the group consisting of carboxylic group (CO_2H and/or CO_2^-), amino group, hydroxyl group, epoxy group and alkoxysilyl group, and content of monomer unit

formed by said monomer is 0.1 to 30 % by weight with respect to said conjugated diene/aromatic vinyl copolymeric rubber.

9. The rubber composition according to Claim 8, wherein said monomer having one polymerizable unsaturated group and said functional group is at least one selected from the group consisting of

a carboxyl group containing compound such as (meth)acrylic acid, maleic acid, fumaric acid, itaconic acid, tetraconic acid, cinnamic acid, monoesters of at least one selected from the group consisting of phthalic acid, succinic acid and adipic acid with (meth)allylalcohol or 2-hydroxyethyl (meth)acrylate, and salts thereof,

an amino group containing compound such as dimethylaminomethyl (meth)acrylate, diethylaminomethyl (meth)acrylate, 2-dimethylaminoethyl (meth)acrylate, 2-diethylaminoethyl (meth)acrylate, 2-dimethylaminoethyl (meth)acrylate, 2-diethylaminoethyl (meth)acrylate, 2-(di-n-propylamino)ethyl (meth)acrylate, 2-dimethylaminopropyl (meth)acrylate, 2-diethylaminopropyl (meth)acrylate, 2-(di-n-propylamino)propyl (meth)acrylate, 3-dimethylaminopropyl (meth)acrylate, 3-diethylaminopropyl (meth)acrylate, 3-(di-n-propylamino)propyl (meth)acrylate, N-dimethylaminomethyl (meth)acrylamide, N-diethylaminomethyl (meth)acrylamide, N-(2-dimethylaminoethyl) (meth)acrylamide, N-(2-diethylaminoethyl) (meth)acrylamide, N-(2-dimethylaminopropyl) (meth)acrylamide, N-(2-diethylaminopropyl) (meth)acrylamide, N-(3-dimethylaminopropyl) (meth)acrylamide, N-(3-diethylaminopropyl) (meth)acrylamide, N,N-dimethyl-p-aminostyrene, N,N-diethyl-p-aminostyrene, dimethyl(p-vinylbenzyl)amine, diethyl(p-vinylbenzyl)amine, dimethyl(p-vinylphenethyl)amine, diethyl(p-vinylphenethyl)amine, dimethyl(p-vinylbenzyloxymethyl)amine, dimethyl[2-

(p-vinylbenzyloxy)ethyl]amine, diethyl(p-vinylbenzyloxymethyl)amine, diethyl[2-(p-vinylbenzyloxy)ethyl]amine, dimethyl(p-vinylphenethyloxymethyl)amine, dimethyl[2-(p-vinylphenethyloxy)ethyl]amine, diethyl(p-vinylphenethyloxymethyl)amine, diethyl[2-(p-vinylphenethyloxy)ethyl]amine, 2-vinylpyridine, 3-vinylpyridine and 4-vinylpyridine,

a hydroxyl group containing compound such as 2-hydroxyethyl (meth)acrylates, 2-hydroxypropyl (meth)acrylates, 3-hydroxypropyl (meth)acrylates, 2-hydroxybutyl (meth)acrylates, 3-hydroxybutyl (meth)acrylates, 4-hydroxybutyl (meth)acrylates, mono (meth)acrylates of polyethylene glycol (the number of ethylene glycol units is 2 to 23), mono (meth)acrylates of polypropylene glycol (the number of propylene glycol units is 2 to 23), N-hydroxymethyl (meth)acrylamide, N-(2-hydroxyethyl) (meth)acrylamide, N,N-bis(2-hydroxyethyl) (meth)acrylamide, o-hydroxystyrene, m-hydroxystyrene, p-hydroxystyrene, o-hydroxy-α-methylstyrene, m-hydroxy-α-methylstyrene, p-hydroxy-α-methylstyrene p-vinylbenzyl alcohol and (meth)allyl alcohol,

an epoxy group containing compound such as (meth)allylglycidylether, glycidyl (meth)acrylate and 3,4-oxycyclohexyl (meth)acrylate, and

an alkoxysilyl group containing compound such as (meth)acryloxymethyl trimethoxysilane, (meth)acryloxymethyl methyldimethoxysilane, (meth)acryloxymethyl dimethylmethoxysilane, (meth)acryloxymethyl triethoxysilane, (meth)acryloxymethyl methyldiethoxysilane, (meth)acryloxymethyl dimethylethoxysilane, (meth)acryloxymethyl tripropoxysilane, (meth)acryloxymethyl methyldipropoxysilane, (meth)acryloxymethyl dimethylpropoxysilane, γ-

(meth)acryloxypropyl trimethoxysilane, γ-(meth)acryloxypropyl methyldimethoxysilane, γ-(meth)acryloxypropyl dimethylmehtoxysilane, γ-(meth)acryloxypropyl triethoxysilane, γ-(meth)acryloxypropyl methyldiethoxysilane, γ-(meth)acryloxypropyl dimethylethoxysilane, γ-(meth)acryloxypropyl tripropoxysilane, γ-(meth)acryloxypropyl methyldipropoxysilane, γ-(meth)acryloxypropyl dimethylpropoxysilane, γ-(meth)acryloxypropyl methyldiphenoxysilane, γ-(meth)acryloxypropyl dimethylphenoxysilane, γ-(meth)acryloxypropyl methyldibenzyloxysilane and γ-(meth)acryloxypropyl dimethylphenoxysilane.

10. The rubber composition according to any one of Claims 2 to 9 wherein a monomer forming said monomer unit (b4) is at least one selected from the group consisting of

a carboxyl group containing compound such as (meth)acrylic acid, maleic acid, fumaric acid, itaconic acid, tetraconic acid, cinnamic acid, monoesters of at least one selected from the group consisting of phthalic acid, succinic acid and adipic acid with (meth)allylalcohol or 2-hydroxyethyl (meth)acrylate, and salts thereof,

a hydroxyl group containing compound such as 2-hydroxyethyl (meth)acrylates, 2-hydroxypropyl (meth)acrylates, 3-hydroxypropyl (meth)acrylates, 2-hydroxybutyl (meth)acrylates, 3-hydroxybutyl (meth)acrylates, 4-hydroxybutyl (meth)acrylates, mono (meth)acrylates of polyethylene glycol (the number of ethylene glycol units is 2 to 23), mono (meth)acrylates of polypropylene glycol (the number of propylene glycol units is 2 to 23), N-hydroxymethyl (meth)acrylamide, N-(2-hydroxyethyl) (meth)acrylamide, N,N-bis(2-hydroxyethyl) (meth)acrylamide, o-hydroxystyrene, m-hydroxystyrene, p-hydroxystyrene, o-hydroxy-α-methylstyrene, m-hydroxy-α-methylstyrene, p-hydroxy-α-methylstyrene p-

vinylbenzyl alcohol and (meth)allyl alcohol, and

an epoxy group containing compound such as (meth)allylglycidylether, glycidyl (meth)acrylate and 3,4-oxycyclohexyl (meth)acrylate.

11. The rubber composition according to any one of Claims 1 to 10 further comprising at least one of reinforcing filler selected from the group consisting of the inorganic compound represented by the formula (I), silica and carbon black.

$$mM_1 \cdot xSiO_y \cdot zH_2O \quad \cdots (I)$$

[In the formula (I), M_1 is at least one selected from the group consisting of Al, Mg, Ti, and Ca; any oxide of any one of the metals; or any hydroxide of any one of the metals; and m, x, y, and z are integers from 1 to 5, 0 to 10, 2 to 5, and 0 to 10, respectively.]

12. The rubber composition according to any one of Claims 1 to 11 which is used for a tire.

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